WHAT IS CLAIMED IS:

1. A purified complex comprising endotoxin bound to MD-2.

2. The complex of claim 1, wherein the endotoxin is a wild-type endotoxin.

3. The complex of claim 1, wherein the endotoxin is a gram-negative bacterial endotoxin.

4. The complex of claim 3, wherein the gram-negative bacterium is a *Neisseria, Escherichia, Pseudomonas, Haemophilus, Salmonella,* or *Francisella* bacterium.

5. The complex of claim 4, wherein the gram-negative bacterium is *Neisseria meningitidis, Escherichia coli, Pseudomonas aeruginosa, Haemophilus influenzae, Salmonella typhimurium,* or *Francisella tularensis.*

6. The complex of claim 1 having a molecular weight of about 25,000.

7. The complex of claim 1, wherein the complex consists essentially of one molecule of endotoxin bound to one molecule of MD-2.

8. The complex of claim 1, wherein the complex is soluble in water.

9. The complex of claim 1, wherein the complex binds to TLR4.

10. The complex of claim 1, wherein the complex produces TLR4-dependent activation of cells.

11. The complex of claim 10, wherein the complex produces a half maximal TLR4-dependent activation of cells at a concentration of less than 1 nM of the complex.

12. The complex of claim 11, wherein the complex produces a half maximal TLR4-dependent activation of cells at a concentration of about 30 pM or less of the complex.

13. The complex of claim 1, wherein the endotoxin is hexa-acylated.

14. The complex of claim 1, wherein the endotoxin is an under-acylated endotoxin.

15. The complex of claim 14, wherein the endotoxin is a tetra-acylated endotoxin.

16. The complex of claim 14, wherein the endotoxin is a penta-acylated endotoxin.

17. The complex of claim 14, wherein the complex produces less TLR4-dependent activation of cells as compared to a complex comprising an endotoxin that is hexa-acylated.

18. A composition comprising the complex of claim 1.

19. The composition of claim 17, further comprising a pharmaceutically acceptable carrier.